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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,482	08/03/2001	Mehyar Khazei	PA990210U1	7220

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Qualcomm Incorporated
Patents Department
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EXAMINER	
PATEL, PARESH H	

ART UNIT	PAPER NUMBER
2829	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/922,482	KHAZEI, MEHYAR	
	Examiner	Art Unit	
	Paresh Patel	2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *86-107* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *86-107* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

2. Claim 97 is objected to because of the following informalities: means as claimed for conducting near field measurement, to obtain magnitude and direction and for creating corresponding current map using the near field measurement raises following question/concern: 1) It is/~~are~~ not clear from the specification, which means does all this function. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 86, 90-95, 97 and 101-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al. (US 5844414) in view of Karz (US 5773974).

Regarding claims 86 and 97(new), Eriksson et al. (hereafter Eriksson) in fig. 1 discloses a near field scanner including a rotating sensor [4, 30], comprising: means [2, 6, 18], coupled to the rotating sensor, for conducting near field [silent about near field] measurements along multiple positions and multiple planes [using 8] relative to an

integrated circuit (IC) [test object 12] to obtain magnitude and direction of magnetic field radiated by the IC [lines 30-33 of column 3 and lines 50-59 of column 4]; and means [2, 18 and lines 48-59 of column 4] for creating a corresponding current map using the near field measurements.

Eriksson is silent about near field measurement. However, Eriksson discloses measuring the electro-magnetic fields and interferences as disclosed above. Invention of Karz detects measurement of electro-magnetic field in the near field without using the spectrum analyzer. Karz at lines 35-67 of column 1 also discloses near field measurement as claimed using near field probe and spectrum analyzer, to identify exact sources of emissions and therefore leaks and problematic areas of test object for designs.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the scanner of Eriksson as taught by Karz to measure near field, and map the electromagnetic field around the integrated circuit to easily identify spots with high radiation level.

Regarding claims 90 and 101(new), Eriksson discloses a tuned receiver [2].

Regarding claims 91 and 102(new), modified Eriksson discloses the means [20 with 2 and 18] using the near field measurement to display a representation of the magnetic field, the representation characterized by at least one of the IC and an outline of the IC in tandem with the representation of the magnetic field.

Regarding claims 92 and 103(new), modified Eriksson discloses the means for conducting near field measurement includes means [18] for inputting an excitation

signal to the IC, the magnetic field being based in part on excitation signal parameters derived from the excitation signal.

Regarding claims 93 and 104(new), Eriksson discloses the means for inputting excitation signal parameters include means [18] for controlling at least one of the frequencies and the amplitude of the excitation signal.

Regarding claims 94 and 105(new), Eriksson discloses the rotating sensor rotates about an axis perpendicular to a surface of the IC [see position of 12 and 4 in fig. 1].

Regarding claims 95 and 106(new), Eriksson discloses the rotating sensor includes a recognition mechanism [recognizing is inherent to 4 because computer 18 controls its position w.r.t. 12] for determining a relative direction of the rotating sensor with respect to the IC.

5. Claims 87-88, 98 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson and Karz as applied to claims 86 and 97 above, and further in view of Todter et al. (US 5937070).

Regarding claims 87 and 98 (new), Eriksson and Karz discloses all the elements except for means for conducting near field measurements involves **applying a transfer function to a signal** received from the rotating sensor. Disclosure of Eriksson eliminates the effect (e.g. noise or interference etc.) of control electronics (due to voltage application) on the measurement of field [see step 3 of fig. 7 (Turn off control electronics) and lines 16-22 of column 4]. Todter et al. (hereafter Todter) in fig. 5-6 discloses a means [compensation circuitry, see lines 17-29 of column 3] for applying a

transfer function to a signal to cancel the noise. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the means (for conducting near field measurements involves) of Eriksson and Karz with compensation circuitry of Todter, so desired output signal can be obtain by reducing or canceling noise component as taught by Todter.

Regarding claims 88 and 99 (new), Todter discloses the transfer function is a function of frequency [lines 59-64 of column 12].

6. Claims 89 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson, Karz and Todter as applied to claims 86-88 and 97-99 above, and further in view of Kondraske (US 4873655).

Regarding claims 89 and 100 (new), Eriksson, Karz and Todter discloses all the elements except for means for calibrating the sensor using a reference field source to obtain the transfer function of the rotating sensor. Kondraske discloses means for calibrating the sensor using a reference field source to obtain the transfer function of the rotating sensor [Abstract]. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the apparatus of Eriksson, Karz and Todter with apparatus as taught by Kondraske, so desired transfer function of the sensor can be conform with calibration and conditioning sensor output.

7. Claims 96 and 107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson and Karz as applied to claims 86 and 97 above, and further in view of May et al. (US 6346812).

Regarding claims 96 and 107, Eriksson and Karz discloses all the elements except for the rotating sensor include a conditioning circuit for conditioning signals generated by the rotating sensor. May et al. (hereafter May) in fig. 1-2 discloses the rotating sensor includes a conditioning circuit [fig. 1 or 2] for conditioning signals generated by the rotating sensor. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the conditioning circuit as taught by May to modify the sensor of Eriksson, in order to recognize unbalanced current (signal) in the sensor due to external field (magnetic field) can be used directly as a measurement parameter, thereby avoiding the need to generate the nulling or compensating current (signal) of the prior art [see lines 35-41 of column 2].

Response to Arguments

8. Applicant's arguments filed 03/08/2005 have been fully considered but they are not persuasive. Applicant argues "none of the references teach the measurement of near fields by use of a rotating sensor to capture magnitude and direction measurements of the near field characteristics". Applicant further argues that Eriksson et al. describes measurements of far field characteristics and this has nothing to do with measuring of near fields.

9. About the first argument, Examiner respectfully disagrees with applicant for the following reasons: 1) argument "to capture magnitude and direction measurements of the **near field** characteristics" is not found in the claim because claim states the measurement of near fields by use of a rotating sensor *to obtain magnitude and direction of* ***magnetic field*** *radiated by the IC*; 2) Eriksson et al. discloses obtaining

magnetic field (including EMI) on the IC (test object 12) using rotating sensor (measuring device 4). Also, Eriksson et al. is silent about the **near field measurement**, see lines 48-65 of column 4; 3) **near fields** (EM Interference) as disclosed by applicant in the disclosure (see paragraph 0388 on page 17 of published document US2002/0033706 A1 of current application no. 09/922482) **are non-radiating** and may includes one or more components of electrostatic fields, quasi-static fields and standing-wave fields (vary in time at RF or microwave frequency). Eriksson et al. suggest finding location of the EM Interference on the IC (test object 12) by moving the rotating sensor (measuring device 4) to a multiple (plurality) of positions, which is same as claimed multiple positions to conduct near field measurement, because Eriksson et al. uses device 4 as claimed to reduce source of interference (using computer 18 and control boards 24, 26) on the test object 12 early on in the design process (by repeating the measurement under the same condition).

10. About the second argument, Examiner again disagrees. Applicant failed to cite this feature in the disclosure of the Eriksson et al. Eriksson et al. is silent about measurements of **far field** characteristics as he is about **near field** measurements. However, Eriksson et al. discloses measurement of EMI using measuring device 4 for test object 12 by moving the device 4 at plurality of positions.

Therefore, while Eriksson et al. is silent about either (far or near fields) types of measurements but discloses measurement of EMI, Eriksson et al. can be modify using near field probe of Kraz (US 5773974), to measure electro-magnetic fields (including

EMI) with spectrum analyzer to locate the source of the problem (e.g. leak area) on IC (an electronic assembly) in a matter of minutes.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 571-272-1968. The examiner can normally be reached on 8:00 to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paresh Patel
Primary Examiner
Art Unit 2829

April 12, 2005